

VIII. *Descriptions of some new and apparently undescribed Species of Hymenopterous Insects from North China, collected by Robert Fortune, Esq.* By F. SMITH, Esq.

[Read May 3rd, 1852.]

THE *Hymenoptera* collected by Mr. Fortune, during his late travels in China, contained a number of species with which we were previously unacquainted; such I believe those to be described in this paper. If an estimate may be formed of the abundance of any particular family from an inspection of the collection, I should conclude that the *Vespidæ* are the most numerous in North China. A species of the genus *Rhynchium* is particularly interesting, from the circumstance of its being stylopized, thus adding to our knowledge of the geographical range of these parasites. But perhaps the most interesting insect is a species of the genus *Pison*, the largest hitherto discovered; in Australia many species are found, that country appears to be their metropolis; in other localities they appear to be very rare. One or two of the species of *Bombi* from North China have also been met with in Northern India. The *Ichneumon* belonging to the genus *Cryptus*, described in this paper, is probably the most beautiful species of the family. The precise locality, in some instances, is given from information kindly communicated to me by Mr. Fortune himself.

Trogus Pepsoides.

Female.—Black; head and antennæ pale yellow, the latter dusky towards their tips. The prothorax, mesothorax, tegulæ and scutellum, reddish yellow; the mesothorax has two divergent longitudinal pale yellow stripes; the breast beneath suffused with yellow; the legs yellow, excepting the coxæ, intermediate femora beneath, and the posterior femora, which are black; wings yellow, their apical margins dark fuscous; the apical margins of the first and second segment of the abdomen more or less ferruginous.

Length 11 lines.

This species is in the collection of the British Museum.

Hab. Ning-po-foo.

Cryptus purpuratus. (Tab. VIII. fig. 2.)

Entirely of a brilliant purple; between the antennæ and the base of the clypeus is a prominence, the sides of which are transversely striate; the clypeus with deep punctures. The meso-

thorax has a deep longitudinal incision, which is margined by elevated carinæ, on each side of which, double divergent carinæ pass forward from the scutellum to the anterior margin of the mesothorax; the scutellum with deep punctures; the metathorax rugulose, the sides sculptured with irregular transverse carinæ, some of which recurve and enclose on each side an oblong deep incision. Wings hyaline, and having a fuscous cloud occupying the first discoidal cell, and extending over a portion of the cells adjoining. The anterior tibiæ slightly ferruginous in front. The abdomen petiolate, gradually increasing in width and terminating in a quadrate club.

Length 9 lines.

Hab. Ning-po-foo.

The only specimen brought by Mr. Fortune of this insect is in the Museum collection; it is the most beautiful species of the genus with which I am acquainted.

Pison regalis. (Tab. VIII. fig. 9.)

Female.—Black; the head and thorax closely and strongly punctured; the face, as high as the notch in the eyes, clothed with hoary pubescence, that on the clypeus black; the clypeus truncate in front; the labrum slightly exposed, smooth and shining; the collar divided from the prothorax by a deeply impressed channel. The metathorax above has a deep central incision, crossed by transverse raised carinæ, which branch off laterally, and become obsolete before reaching the sides; towards its apex the metathorax is transversely rugose-striate; the tegulæ rufo-piceous; the wings smoky, and having an indistinct pale nebulosity towards the apex of the anterior wings, crossing the third submarginal cell. Abdomen shining and finely punctured, covered with a thin, short, black pubescence; the apical margins of the segments slightly constricted, and clothed with a thin, changeable, sericeous pile. The tibiæ and tarsi are densely clothed with pile of a similar colour.

Length 9 lines.

Male.—This sex only differs from the female in having a shorter silvery pile occupying the depressions of the face at the sides of the clypeus, which is nearly naked, and in having the sculpture more strongly impressed on the metathorax.

Hab. Ning-po-foo.

This is the largest species of the genus hitherto discovered, and the first from China. It would come partly into the second

division of the genus according to Shuckard, who formed a subgenus for those species which receive the first recurrent nervure towards the apex of the first submarginal cell; it would therefore belong to his genus *Pisonitus*; but the second recurrent nervure is in accordance with the species of *Pison*, and therefore I prefer including it in the latter genus, to making a second subgeneric division. Species of this genus are rare from all localities except Australia, which appears to be its metropolis.

Cerceris Zonalis.

Female.—Black, deeply punctured; the face yellow below the base of the antennæ; a narrow yellow line running between the antennæ up to the anterior stemma; a minute dot at the vertex of the eyes, behind; the mandibles yellow, their apex black; the antennæ beneath, and their scape above, ferruginous, the latter yellow in front; the collar, tegulæ, post-scutellum, and a minute dot on each side of the metathorax, yellow; the legs fusco-ferruginous; the anterior femora and tibia in front, their tarsi in front, the intermediate and posterior femora at their apex above, their tibia in front, and the basal joint of the intermediate tarsi, yellow; the apex of the anterior wings dark-fuscous. The basal segment of the abdomen ferruginous, the third and fifth segments yellow, having their basal margins black.

Hab. North China.

Rhynchium flavo-marginatum.

Male.—Black; the head and thorax closely punctured; the clypeus, a minute spot between the antennæ, and the scape in front, cream-coloured; the entire margin of the clypeus black; the apical recurved joint of the antennæ ferruginous. An interrupted yellow stripe on the margin of the prothorax; the tegulæ have a ferruginous spot; the wings smoky, darkest at their anterior margins, and beautifully iridescent; the intermediate and posterior femora ferruginous above and the anterior pair at their apex; a cream-coloured stripe on the anterior tibiæ in front; the claws testaceous. Abdomen deeply punctured, the margin of the first and second segments yellow, slightly interrupted in the middle; beneath, the margins of the segments are rufopiceous.

The specimen described is doubly stylopized; the heads of two female stylops project beneath the third abdominal segment.

Rhynchium ornatum. (Tab. VIII. fig. 10.)

Female.—Black; the head and thorax coarsely punctured, the upper half of the clypeus, a spot between the antennæ, the scape in front, and a dot at the base of the mandibles, yellow; the mesothorax has a central short impressed line in front, and towards the scutellum a central slightly raised portion, smooth and shining, less closely punctured than the other part; the sides of the metathorax are roughened with separate deep punctures; the anterior margin of the prothorax has a bright orange stripe, attenuated in the middle; the outer margin of the tegulæ slightly ferruginous; wings fuscous, darkest towards their anterior margins; the anterior tibiæ have a yellow line in front, and the intermediate pair also an indistinct stripe; the knees slightly ferruginous; claws of the anterior tarsi testaceous. The first segment of the abdomen is orange-yellow, having at the base a triangular black patch; the second segment black, and having a broad orange-yellow fascia at its apical margin, deeply notched in front; the insect is entirely black beneath.

Hab. Tein-tung, near Ning-po, amongst the mountains.

Ancistrocerus flavo-punctatus.

Female.—Black; the head and thorax deeply punctured; the clypeus, a spot between the antennæ, the scape beneath, and a minute spot at the base of the mandibles, orange-yellow; the tegulæ rufo-piceous; wings fusco-hyaline; the sides of the metathorax coarsely rugose; tips of the femora, the anterior tibiæ in front, and the claws, ferruginous; the legs have a beautiful golden reflection; the abdomen coarsely punctured, except the second segment, which is finely and distantly punctate; the margins of the first and second segment have a bright orange-yellow fascia on their apical margins above; the second segment is considerably wider than the basal one, and has a beautiful sericeous reflection; the body beneath entirely black.

Length 8 lines.

This beautiful species I have not seen from any other locality than Ning-po.

Eumcnes decoratus.

Female.—Black; the head and thorax coarsely and closely punctured; the clypeus, a spot between the antennæ, triangular-shaped towards the vertex, and two-thirds of the basal portion of the scape in front yellow; the two apical joints of the antennæ yellow

beneath; a narrow yellow line traverses the inner margin of eyes from the apex of the clypeus to their notch; a short narrow yellow line behind the eyes towards the vertex; the apical half of the mandibles ferruginous. The prothorax, the tegulæ, two lines behind them, the apical half of the post-scutellum, and an obscure spot at the sides of the metathorax, orange-yellow; the wings sub-hyaline. The margins of the coxæ and trochanters beneath, the femora towards their apex, the tibiæ and the claws, ferruginous; the entire legs are clothed with a reflective golden pile. The basal segment of the abdomen closely punctured, its apical margin above, as well as those of the second segment, broadly, and the following segments narrowly, orange yellow; the abdomen has a beautiful sericeous reflection, and the second, third and fourth segments beneath have their margins yellow.

Length 12 lines.

The male, in colouring, does not differ in any respect from the female.

Length 9 lines.

Hab. Tein-tung.

Only two specimens of this fine insect have come under my notice; the species is in the British Museum Collection.

Eumenes quadratus.

Female.—Black; head and thorax roughly punctured, a yellow spot between the antennæ, and a line along the margins of the eyes from the base of the antennæ to their notch; the third, and the two or three following joints of the antennæ, rufo-piceous beneath; a yellow stripe on the collar in front; the legs rufo-piceous at their knees; the wings dark fuscous. Abdomen, the petiole elongate; its apical margin, as well as that of the following segment in the middle, yellow; the puncturing deep, but scattered on the petiole, closer on the second segment, becoming rugose towards its apical margin.

Length $9\frac{1}{2}$ lines.

Male.—Black; the clypeus, the face above as high as the insertion of the antennæ, their scape in front and apical joint, yellow; the prothorax in front, a narrow line extending to the tegulæ, a line behind them, the post-scutellum, the anterior and intermediate tibiæ in front, the posterior tibiæ towards the base, and the knees, yellow. Abdomen, the apical margin of the basal segment, a minute spot on each side of the second, and an arched macula at its apical margin, yellow, the entire segment is covered

with a beautiful sericeous reflection; punctured as in the female, but the wings paler.

Length $7\frac{1}{2}$ lines.

This species somewhat resembles the *punctata* of Sausseur, but it is larger, the sculpture is very different, its wings are darker, and its petiole more elongate; from the exact similitude in form and sculpture I have placed these sexes together as constituting one species. They also agree in the form of their peculiar-shaped abdomen, which, viewed laterally, is square, having the upper angles rounded.

Hab. near Ning-po-foo.

Polistes sulcatus.

Female.—Black; the head, excepting the face above the insertion of the antennæ as high as the vertex of the eyes, ferruginous; the scape and the mandibles rufous; the prothorax, two spots on the disk of the meso-thorax, the scutellum and post-scutellum, the femora, tibiæ within, and the tarsi, ferruginous; the metathorax transversely sulcate. Abdomen, the second segment has an indistinct macula on each side, its apical margin, and those of the following segments, obscurely ferruginous; the apical one entirely so, and having a dark line down its centre.

Length 12 lines.

Male.—Black; the clypeus, and a line along the inner margins of the eyes, as high as their emargination, yellow, and covered with silvery pile; a broad ferruginous stripe down the centre of the clypeus; the scape beneath, and the tips of the joints of the antennæ beneath, ferruginous. The prothorax, tegulæ, the margins of the scutellum and post-scutellum, and the legs, ferruginous. Abdomen as in the female—the wings in both sexes are hyaline, having a ferruginous tinge, particularly at their anterior margins.

This species, although closely resembling the *Gyrostoma Orientalis* of Kirby, is very distinct, and, independent of sculpture, &c. is a smaller species.

Hab. near Ning-po-foo.

Vespa Mandarinia. (Tab. VIII. fig. 1.)

Female.—Black; the head, as well as the scape of the antennæ, of a reddish-yellow; the eyes, the pit in which the ocelli are placed, and the tips of the mandibles, black; the clypeus notched in front; the three apical joints of the antennæ slightly ferruginous beneath, the cheeks broadly dilated. The scutellum,

which is divided by a central channel, has on each side an indistinct ferruginous spot, the tegulæ have a stain of the same colour outwardly, and the wings rufo-fuscous, with a darker colouring towards their base; the legs are rufo-piceous at their joints, and also the front of the anterior tibiæ. The basal and apical margins of the first segment of the abdomen have a broad continuous yellow band; a similar band on the apical margin of the second segment, and another towards its base which becomes pointed at the sides of the abdomen; the third, fourth and fifth segments have yellow bands on their apical margins, and the sixth is entirely yellow; beneath, the second and following segments are margined with yellow, the bands increasing laterally in width; above, the abdomen is beautifully aciculated, and the entire insect has a changeable sericeous reflection.

Length 1 in. 9 lines.

Worker.—Differs from the female in the following particulars: a ferruginous spot on the shoulders, the post-scutellum tinged with the same colour.

Length 1 in. 3 lin.

Hab. Tein-tung, near Ning-po-foo, amongst the mountains.

This is one of the finest species of the genus yet discovered. Mr. Fortune informed me that this insect constructs large globular nests in the topmost branches of trees, and is very abundant.

Vespa ducalis.

Female.—Ochraceous; the head large, the cheeks broadly dilated, the clypeus and mandibles rugose, the teeth of the latter, the region of the stemmata, a line on the scape behind, and a deep depression above their base, black; the prothorax, mesothorax, and anterior margin of the scutellum, black; the tegulæ black, their outer margins yellow; wings slightly fuscous near their base; the metathorax below the post-scutellum, the thorax beneath, and the femora, black; the apex of the coxæ, trochanters and femora, the tibiæ and tarsi, of a reddish yellow; the first and second segments of the abdomen entirely ochraceous, having above a central, transverse, black band, that on the second segment more or less interrupted, the rest of the segments totally black.

Length 1 inch 6 lines.

Worker.—Head as in the female, but of a redder hue; the anterior portion of the prothorax, the outer margins of the tegulæ, the scutellum and post-scutellum, tibiæ and tarsi, of a reddish

yellow, the post-scutellum palest, the tarsi above fuscous. Abdomen, the first and second segments of a reddish yellow, having bright yellow marginal fasciæ, in front of which is a narrow band of a deep red-brown colour; the rest of the segments are black, the third has a bright yellow marginal fascia; the yellow fasciæ are continued beneath on the second and third segments, the rest are narrowly piceous.

Male.—The head ferruginous, the region of the ocelli and that between the base of the antennæ, also the teeth of the mandibles, black; the antennæ fusco-ferruginous above. The anterior margin of the prothorax pale ferruginous; the mesothorax has two small ferruginous spots in front; a spot on the tegulæ, and also the posterior portion of the scutellum, ferruginous, beneath which, on each side, is a bright yellow dot; the anterior tibiæ in front, also the tips of the femora, ferruginous. The first segment of the abdomen ferruginous, and at the base divided from the apical portion, which is yellow, by a black band; the second segment ferruginous, having a broad apical yellow band; the third and fourth are yellow, each having at their base a black band; the fifth, sixth and seventh segments are black; beneath, the second, third and fourth segments have a yellow band on their apical margins; the abdomen and legs are covered with a changeable golden iridescence.

Length 13 lines.

Habitat Tein-tung, near Ning-po-foo.

This species, as well as the preceding, were both first discovered by Mr. Fortune, and are fine additions to our *Vespidæ*.

Vespa Crabroniformis.

Female.—Nigro-fuscous; the head orange-yellow, the antennæ yellow beneath, the basal joint ferruginous; the mandibles ferruginous, their teeth black; the prothorax yellow, a broad central indistinct stripe on the mesothorax anteriorly, the tegulæ ferruginous; the wings fusco-hyaline, their anterior margins, from their base to the first submarginal cell, rufo-fuscous; the legs covered with an iridescent pile. Abdomen fusco-ferruginous; at the base, laterally, a bright ferruginous spot, the apical margin has a narrow yellow fascia; the second segment has also the apical margin yellow, rather more broadly so than the basal segment; the following segments are yellow, the third has at its base a tridentate, transverse, fusco-ferruginous fascia; the fourth merely two lateral spots of the same colour; the abdomen has a similar reflective pile. The entire insect naked, except a few black

hairs on the vertex, and a little yellow pubescence on the sides of the metathorax.

The male exactly corresponds with the female, differing only in having the antennæ, as usual, elongated, and in having on each side of the second segment of the abdomen an oblique, indistinct, pale stripe running inwards, and also two minute pale dots.

Crocisa decora.

Female.—Black; the face, below the base of antennæ, clothed with pale blue pubescence; most sparingly so on the clypeus; a continuous fringe of similar pubescence behind the eyes and along the margin of the vertex. Thorax, a stripe on the collar, another in the centre of the mesothorax, reaching the disk, a dot on each side opposite the tegulæ, which have a spot behind, and also an epaulet, and two round spots on the posterior margin of the mesothorax, of blue pubescence; on the sides of the metathorax a patch of long white pubescence; beneath the wings is a stripe of blue pubescence, curving forwards, and then recurving under the wings; the basal joint of all the tarsi above, the anterior and intermediate tibiæ above, and a spot at the base of the posterior tibiæ, of blue pubescence. The scutellum slightly rounded at the sides, and deeply notched behind. The first segment of the abdomen has a transverse fascia at its base, and another a little before its apical margin, united to each other at the sides; the four following segments have a central fascia, very slightly interrupted in the middle, of blue pubescence; the anterior wings dark fuscous, having the externo- and interno-medial cells, the first discoidal, and a spot in the first submarginal cell, hyaline. The entire insect deeply punctured.

The only species of the genus, which closely resembles this, is one which comes plentifully from Africa, but that species may at once be recognized as distinct, by its being delicately punctured, and the pubescence of a much paler colour.

Xylocopa appendiculata.

Female.—Black; the antennæ slightly piceous beneath; the thorax, above and on the sides, clothed with bright yellow pubescence; the wings fuscous, darkest towards their apical margins, and having a bright prismatic reflection; the abdomen punctured, and fringed at the apex with black hair.

Male.—Black; the clypeus, the scape of the antennæ in front, and the apical joints beneath, yellowish white; the thorax, above

and on the sides, clothed with bright yellow pubescence; wings as in the female; the anterior tarsi fringed with fulvous hair; the posterior tibiæ have at their apex a somewhat oblong projecting appendage. The abdomen punctured, the basal segment clothed with bright yellow pubescence; the apex fringed with long black hairs.

Hab. near Ning-po-foo.

Xylocopa rufipes.

Female.—Black; the apical joints of the antennæ piceous beneath, the head nearly as wide as the thorax; the thorax above clothed with fuscous pubescence; on the metathorax and on the sides it is pale ochraceous, as it is also on the basal, and basal half of the second segment of the abdomen; the wings fusco-hyaline, and having a dark cloud on their apical margins; the intermediate and posterior tarsi, and the apex of the posterior tibiæ, densely clothed with fulvous pubescence; the sides of the abdomen towards its apex fringed with pubescence of the same colour, as are also the margins of the abdominal segments beneath.

Xylocopa pictifrons.

Female.—Black; the head as wide as the thorax, the pubescence very short, and thinly scattered; the upper margin of the clypeus smooth and shining, a deep depression on each of its lateral margins; the disk of the thorax very smooth and shining, sparingly punctured; the wings fuscous, having a bright iridescent coppery reflection, the anterior pair have their medial and discoidal cells transparent; legs entirely black; the posterior tarsi furnished with a dense brush of black hair. Abdomen elongate, its disk sparingly punctured, its sides densely so; thickly pubescent at the sides.

Length 10 lines.

Male.—Black; clothed entirely with fulvous pubescence; the face has two broad yellow stripes extending from the vertex to the base of the mandibles, the intermediate portion below the antennæ clothed with black hair. The wings sub-hyaline, slightly clouded towards their apical margins; the tarsi within are clothed with ferruginous pubescence. Abdomen, down the centre the pubescence is less dense, giving it the appearance of an obscure black line.

Length 9 lines.

Hab. Chusan.

Bombus tunicatus. (Tab. VIII. fig. 7.)

Female.—Head black; thorax clothed with white pubescence, and having a black transverse band between the wings, which are dark fuscous; the two basal segments of the abdomen have white, the third black, and the rest of the apical segments bright fulvous pubescence; the legs entirely black, as well as the body beneath.

Length 10 lines.

Worker.—This sex differs in having a broader black band on the thorax, in having only the basal segment white, the second being in this sex fulvous; otherwise as the female.

Length 6 to 8 lines.

Hab. Chusan, on the top of hills.

The workers only were brought by Mr. Fortune from North China, but specimens of these, and also of females, are in the Museum Collection from northern India. It is one of the most beautiful species of the genus.

Mr. Fortune informed me that all the *Bombi* were found on the top of hills in Chusan, and adjoining main land.

Bombus hæmorrhoidalis.

Female.—Black; the head and thorax clothed with black pubescence; the wings dark brown; the two basal segments of the abdomen clothed with bright yellow pubescence, the rest of the segments with bright fulvous red.

Length 11 lines.

Worker.—Differs only in size. (8 to 9 lines.)

Male.—The head and thorax clothed with long sooty-black pubescence; the antennæ as long as the head and thorax; the pubescence on the legs is long sooty-black, intermixed with pale hairs; the legs are elongate, their tarsi ferruginous. Abdomen, the two basal segments clothed with bright yellow, the rest with bright fulvous pubescence.

Length 8 lines.

Hab. Chusan, on the hills.

In the British Museum there are specimens of this species from northern India.

Bombus trifasciatus. (Tab. VIII. fig. 4.)

Female.—Black; the head clothed with black pubescence, the thorax with yellow, the legs with black, their tarsi ferruginous. Abdomen, the two basal segments clothed with yellow pubes-

cence, the third and fourth with black, and the apical one with bright fulvous.

Length 10 lines.

Worker.—Resembles the female.

Length 7 lines.

Hab. Chusan.

I have not seen this species from any other locality.

Bombus atripes. (Tab. VIII. fig. 3.)

Worker.—The head entirely black; the thorax above clothed with fulvous pubescence, the wings dark fuscous, the legs entirely black. Abdomen clothed above with a deep, rich, fulvous pubescence.

Length 9 lines.

Male.—This sex exactly corresponds with the worker in colouring.

Length 9 lines.

From the fact of the two sexes corresponding in size, I take them to be male and worker. The male *Bombi* are usually considerably smaller than the females.

Hab. Chusan.

Bombus nasutus.

Worker.—Head one-third longer than broad, entirely black, except a few yellow hairs on the vertex; the thorax clothed with ochraceous pubescence, as well as the two basal segments of the abdomen; the wings dark fuscous, the legs entirely black; the body beneath black.

Length 6 to 9 lines.

Hab. Chusan.

Bombus breviceps.

Worker.—Head entirely black, as broad as long; the thorax clothed with bright fulvous pubescence, and the two basal segments of the abdomen with bright golden yellow; the rest of the abdomen with black; the wings dark fuscous; legs and body beneath black.

Length 9 lines.

Hab. Chusan.

There is considerable general resemblance between this species and *nasutus*, and probably in faded specimens it would be still greater, but the form of the head is decisive of their difference.